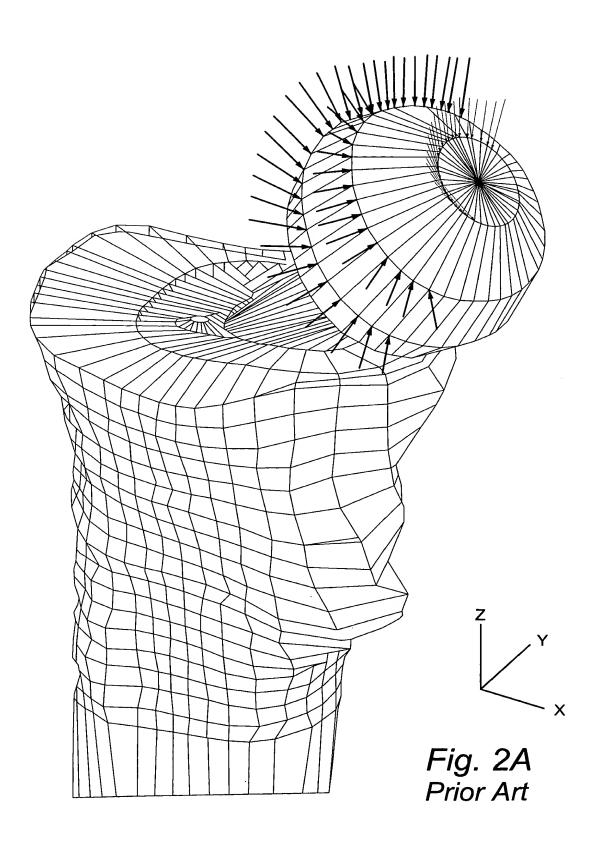


## Fig. 1 **NEW METHOD** 21 FREE BODY DIAGRAM **ASSUMPTIONS:** 1) GOVERNING EQUATION {f}=[k]{x} 2) FORCES ({f}) ARE KNOWN 3) MATERIAL PROPERTIES ([k]) ARE UNKNOWN INDUSTRY, GOVERNMENTAL 4) POTENTIALS ({x}) ARE KNOWN AGENCY RESEARCH INSTITUTES OR DEFINED 5) MODEL GEOMETRY IS KNOWN MATERIAL MANUFACTURING 22 BY VARYING MANUFACTURING-PRE-PROCESSING PROCESS CONTROL PARAMETERS (EX., SPEED, TEMP., PRESSURE, ETC.). DESIGN MODEL GEOMETRY NUMEROUS NEW MATERIALS ARE NODE & ELEMENT GENERATION. DEVELOPED, FROM A SINGLE PROCESS • INPUT BOUNDARY CONDITIONS, **INCLUDING FORCES & POTENTIALS** MATERIAL TESTING FINITE ELEMENT ANALYSIS DEFINITION OF MATERIAL PROPERTIES OF A MATERIAL; NEEDED FOR SOLVE FOR MATERIAL PROPERTIES MATERIAL CLASSIFICATIONS MATRIX ([k]) USING OPTIMIZATION 25 MATERIAL PROPERTY POST-PROCESSING **DATABASES** CONVERSION OF MATERIAL PROPERTIES ARCHIVES OF MATERIAL PROPERTY MATRIX ([k]) TO FORMATS, HAVING A COEFFICIENTS WITH THEIR SPECIFIC ORDER, OF SMALL VOLUME CORRESPONDING MANUFACTURING-INCREMENTS. WITH REPRESENTATIVE PROCESS CONTROL PARAMETERS MATERIAL PROPERTY COEFFICIENTS. VOLUMETRICAL CONTROLLED **MANUFACTURING** 26 MATCHING CALCULATED MATERIAL PROPERTY COEFFICIENTS TO INDUSTRIAL MATERIAL PROPERTY COEFFICIENTS CREATION OF ORDER (SEQUENCE) OF MANUFACTURING-PROCESS CONTROL PARAMETERS TO RECREATE THE CALCULATED MATERIAL PROPERTY MATRIX CONVERSION OF MANUFACTURING-PROCESS CONTROL PARAMETERS SEQUENCE TO FORMATS TO CONTROL THE ACTUAL MANUFACTURING PROCESS MACHINERY

(SIMILAR TO A TRANSLATOR)

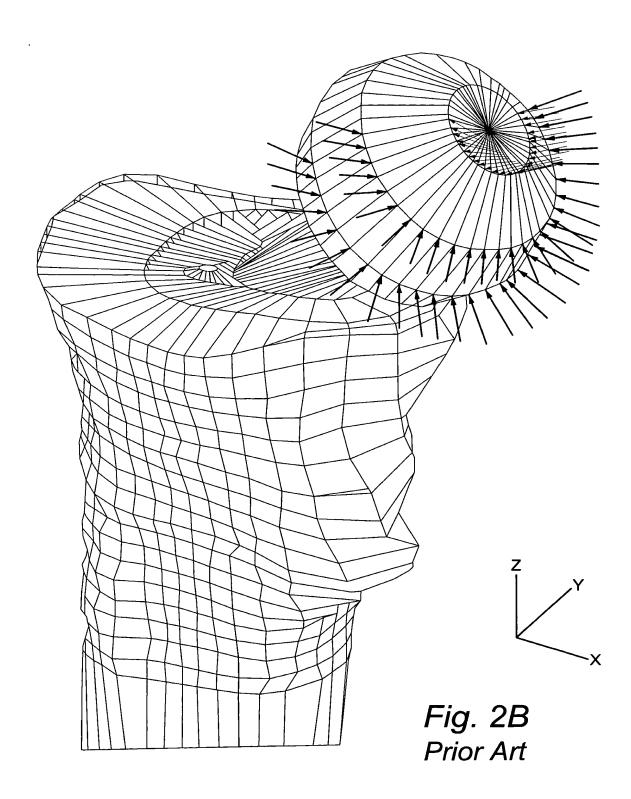


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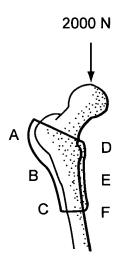


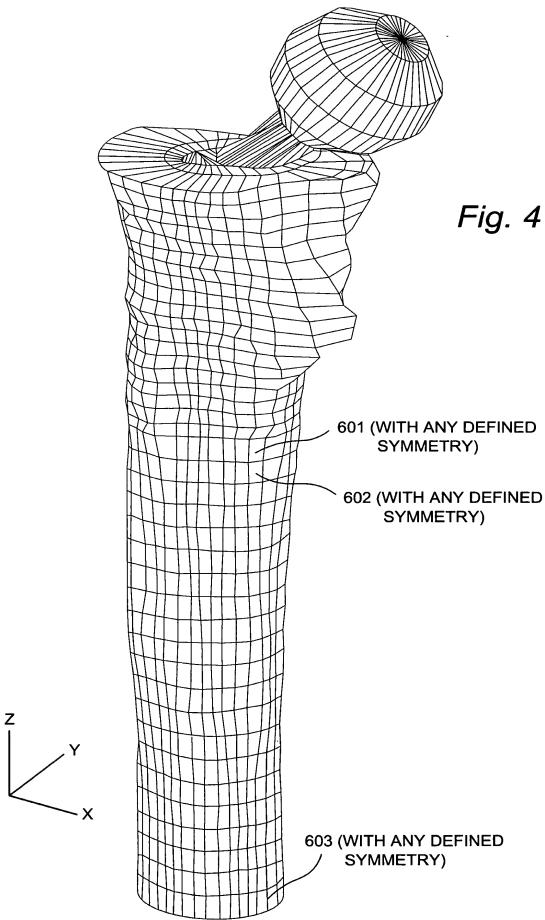
Fig. 3A Prior Art

	INTACT FEMUR			
Α	0.221 ± 0.057			
В	0.875 ± 0.119			
С	0.698 ± 0.122			
D	1.217 ± 0.150			
Ε	1.315 ± 0.131			
F	1.208 ± 0.131			

Fig. 3B Prior Art



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M1-1	E1-1	σ1-1	PROCESS	PROCESS PARAMETERS
M1-2	E1-2	σ1-2	PROCESS	PROCESS PARAMETERS
:	:	••	:	:
M1-n	E1-n	σ1-n	PROCESS	PROCESS PARAMETERS

~700

Fig. 5A Prior Art

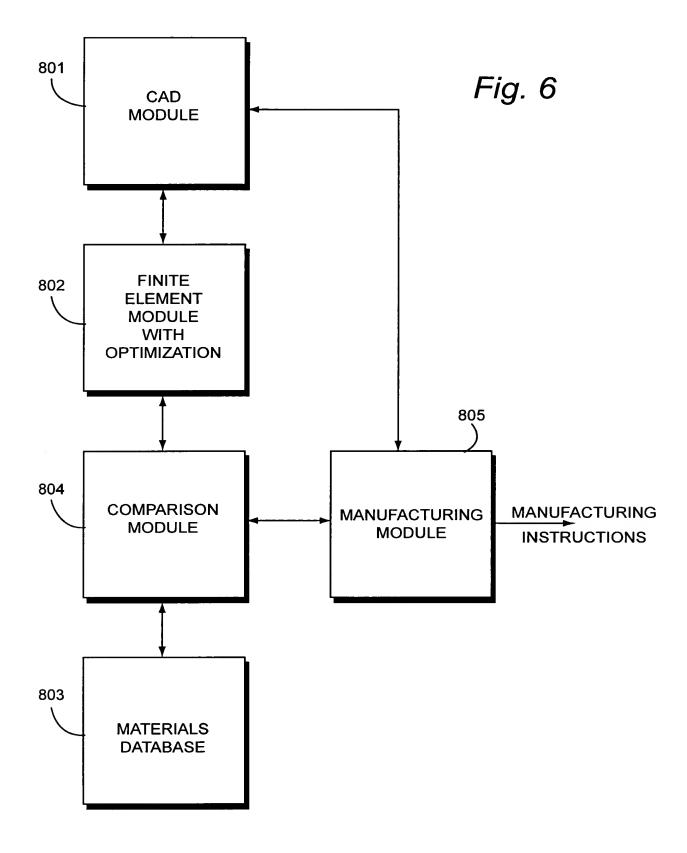
M2-1	σ'2-1	PROCESS	PROCESS PARAMETERS
M2-2	σ'2-2	PROCESS	PROCESS PARAMETERS
	•••	:	:
M2-n	σ'2-1	PROCESS	PROCESS PARAMETERS

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Fig. 5B Prior Art



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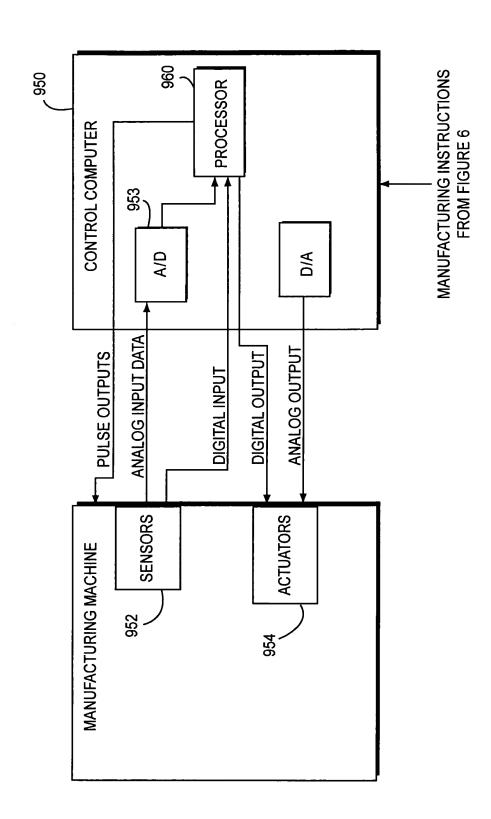


Fig. 8